

An
Inaugural Dissertation

Phthisis Pulmonalis.

by David Hutcheson

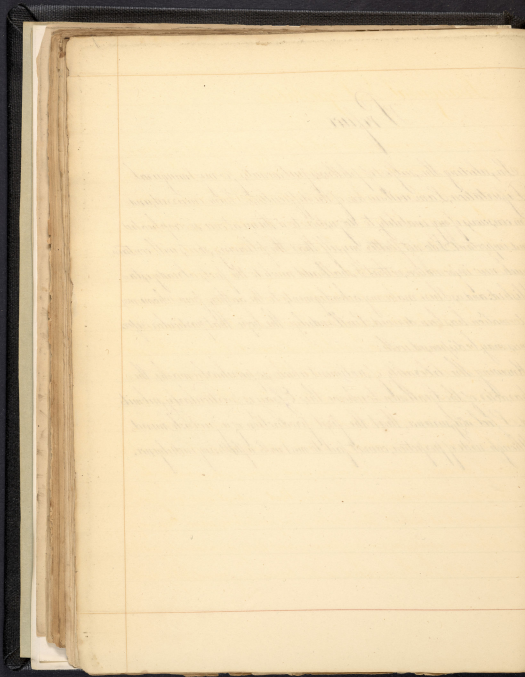
read Mar 9th

1818

Inaugural Dissertation Preface

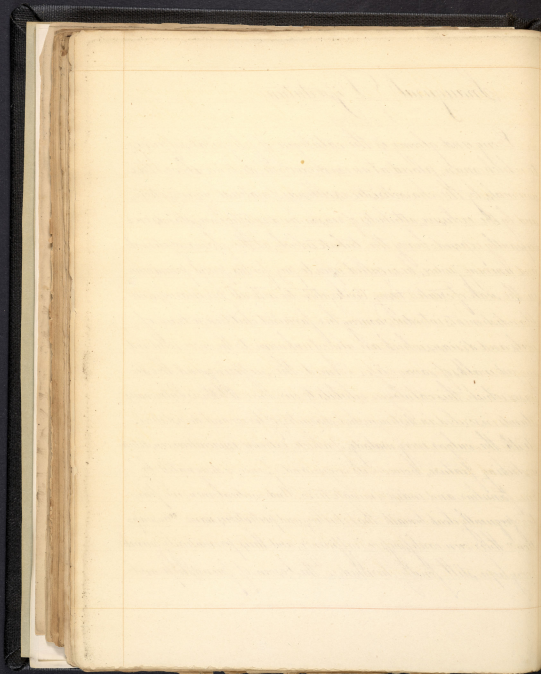
In selecting the subject of phthisis pulmonalis for my Inaugural Dissertation, I am well aware of the difficulties I have incurred, and am conscious of my inability to do justice to a theme at once so complicated and important. I do not flatter myself that the following sheets will contain much new information, or that I shall add much to the facts already established; and yet I must make my acknowledgments to the authors from whom my information has been derived. I will indulge the hope that particular criticisms may be dispensed with.

Knowing the liberality of sentiment which so particularly marks the character of the Gentleman to whom this Essay is particularly submitted, I feel assurance, that the first production of a private mind, although void of perfection, cannot fail to meet with a flattering indulgence.



Inaugural Dissertation

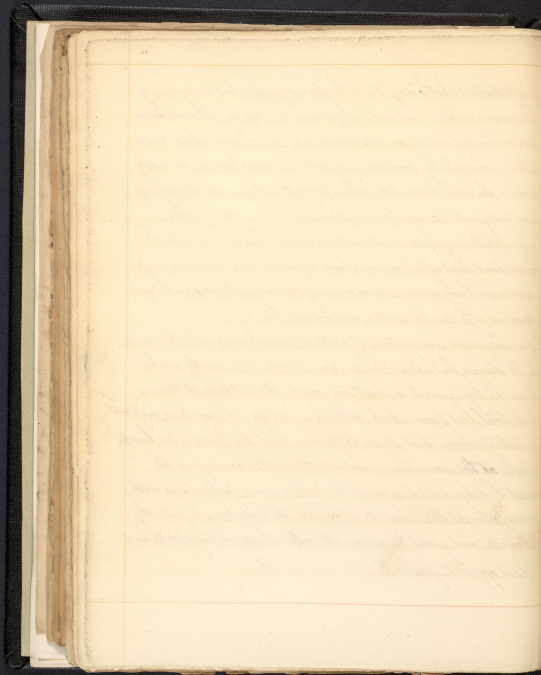
Long and gloomy is the catalogue of physical sufferings to which man, placed at an immeasurable distance above other animals by the characteristic excellencies of material organization, and by the exclusive attributes of reason and intelligence, stands incessantly exposed: heavy the tribute which, at the shrine of eternal and punning justice, he is called upon to pay for his proud preeminence in the rank of created being. Civilization too with all her charms and blandishments introduced among her favored children, a train of evils and diseases which are almost unknown to the more cold and rugged walks of savage life. Amid the sufferings and the diseases which this catalogue exhibits to our view Phthisis Pulmonalis stands inscribed in distinguished characters of terror and devastation. With the vulgar every malady of which extreme emaciation constitutes a striking feature, however its origin and essence, is designated by one familiar and indiscriminate term. And medical men, we fear, too frequently cloak beneath that chilling and portentous name "consumption" their own early proper insufficiency, and thus prematurely quench every hope, still fondly cherished in the bosom of friendship and



of affection. Not a day it is to be spared, proper, but many cases of phthisis, capable of great and even permanent relief, by the well directed resource of science, are abandoned as hopeless, some of which, terminating, unexpectedly from the unexpected energies of nature, serve only to blacken the truth of deserved honours, the nostrum of some vile empiric, and to degrade the regular physician in the eyes of the public.

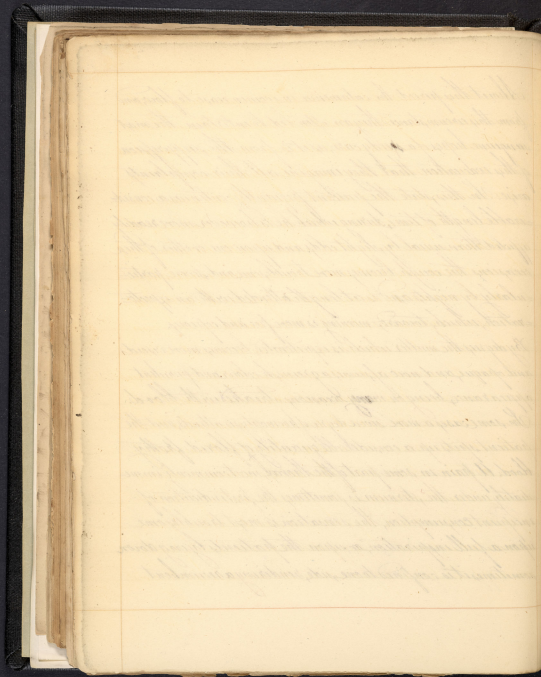
By phthisis pulmonalis or pulmonary consumption is to be understood that affection in which a general wasting or consumption of the body arises from a disease of the lungs, attended with expectoration of purulent matter, and a hectic fever.

The incipient symptoms of phthisis, usually vary with the cause of the disease, but when it arises from tubercles, it is mostly marked thus: It begins with a short dry cough, that at length becomes habitual, but from which nothing is spit up, for some time, next a pretty wheezing that seems to proceed from the fauces. The breathing is at the same time, somewhat impeded, and upon the least bodily motion is much hurried, a sense of strangling with oppression at the chest is experienced, the body becomes gradually emaciated, and great languor with indolence, depletion of spirits, and loss of appetite prevail.

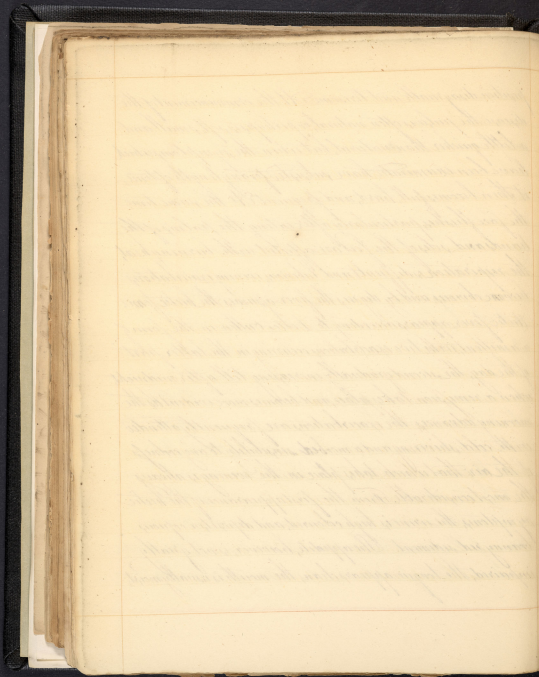


About this period the catamenia in women cease to flow, and from this circumstance they are often led to entertain the most sanguine hopes of a speedy cure, as it is from the suppression of this evacuation that they imagine all their complaints arise. In this state the patient frequently continues a considerable length of time, during which he is however more readily affected than usual by slight colds, and upon one or other of these occasions the cough becomes more troublesome and severe, particularly by nights, and is at length attended with an expectoration, which, towards morning is more free and copious.

By degrees the matter which is expectorated, becomes more viscid and opaque, and now assumes a greenish colour and purulent appearance, being on many occasions streaked with blood. In some cases a more severe degree of haemoptysis attends, and the patient spits up a considerable quantity of florid frothy blood. A pain in some part of the thorax, most commonly immediate under the sternum is sometimes the first indication of incipient consumption, the sensation is most troublesome upon a full inspiration, or upon the patients lying down, sometimes it is confined to one side, rendering a recumbent

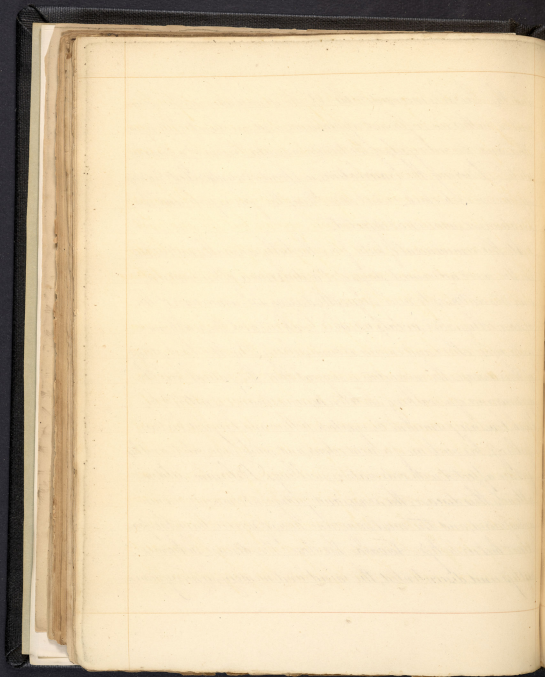


position disagreeable and tiresome. At the commencement of the disease the pulse is often natural, or perhaps is soft, small and a little quicker than natural, but when the pyrexia, which have been enumerated have subsisted for any length of time, it then becomes full, hard, and frequent. At the same time the face flushes, particularly after eating the palms of the hands and soles of the feet are affected with burning heat, the respiration is difficult and laborious, evening exacerbations become obvious, and by degrees the fever assumes the hectic form. Hectic fever, according to Doctor Cullen in the form of a remittent, with two exacerbations occurring in the latter part of the day, the second gradually increasing till after midnight when a remission takes place, and becomes more evident as the morning advances, the exacerbations are frequently attended with cold shivering and a morbid sensibility to any coolness of the air that which takes place in the evening is always the most considerable. From the first appearance of the hectic symptoms, the urine is high coloured, and deposits a copious branny red sediment. The appetite, however, is not greatly impaired, the tongue appears clean, the mouth is usually moist,



and the thirst is inconsiderable. As the disease advances the fauces put on rather an inflamed appearance, and are beset with aphthae; and the red vessels of the tunica adnata become of a pearly white. During the exacerbations, a florid circumscribed redness appears on each cheek, but at other times the face is pale, and the countenance somewhat dejected.

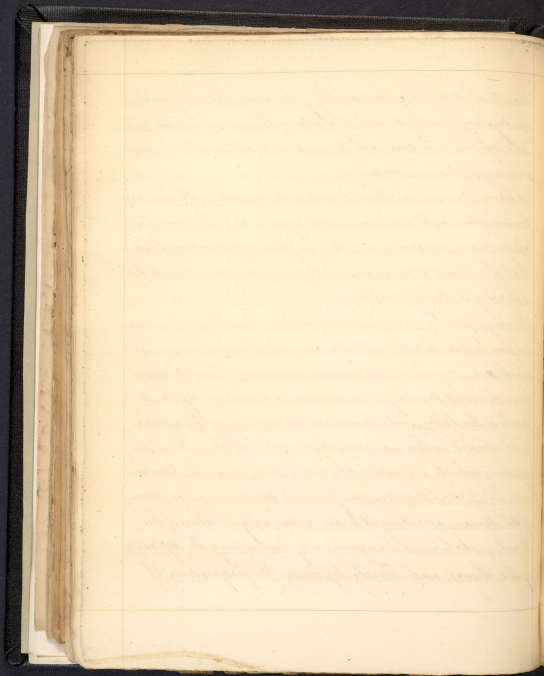
At the commencement of hectic fever the belly is usually castive, but in the more advanced stages of it, a diarrhoea often comes on, and this continues to recur frequently during the remainder of the disease, colliquative, severely bilious, break out, and these alternate with each other and induce extreme debility. In the last stage of this disease the emaciation is so great that the patient has the appearance of a walking skeleton, his countenance is altered, his cheeks become prominent, his eyes look hollow and languid, his hair falls off, his nails are of a livid colour, and much exuviated, and his feet are affected with oedematous swellings. Delirium, seldom attends this disease, the senses and judgment commonly remain unimpaired, and the most sanguine hopes of recovery, leave the patient, but with life. Towards the close of the disease he becomes restless and discontented, the mind and memory seeming some-



times to, show in the general debility of the body, his voice failing,
a distressing hoarseness and slight convulsions coming; his pulmonary
complaints subside, and he sinks to death without a con-
sciousness of pain or anxiety.

I have thus endeavored to give a description of Pulmonary
Consumption as it most commonly appears, but the symptoms
are so various, and its symptoms often so complicated
that the limits of an inaugural essay do not permit me to trace
it through its different forms.

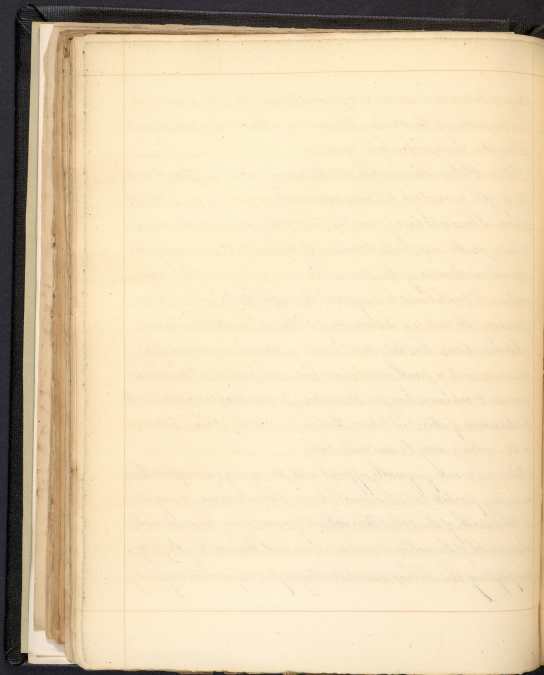
It may not however be improper to observe here that it is not un-
frequently complicated with other diseases, the most common of
which are scrophulous, rheumatism, and gout; it has likewise
been observed to give place to mania; pains in different
parts of the body, and cutaneous eruptions; its progress appears
to be arrested in the most remarkable degree by the state of the
system which is induced by pregnancy, from this circum-
stance Doctor Beddoes has founded his very ingenious theory
of the disease, ascribing it to an undue excretion of the
blood, gestation in his opinion by diminishing the capacity
of the thorax, and thereby lessening the proportion of



Oxygen decomposed in the lungs must necessarily tend to suspend the symptoms of the disease till delivery, after which period we find the disorder progressing as before gestation.

Pulvis Pulmonalis generally attacks persons between the fifteenth and thirty fifth years of life, but may occasionally happen before or after that period. Those who have grown fast, have clear skin and delicate complexion are the most liable to pulmonary complaints. A narrowness of the chest, and an elevation of the sternum, are witnesses of a predisposing conformation. It has likewise been a general observation, that a rotting or cariousness of the teeth, is a characteristic of Pulvisual diathesis. Doctor Sumner observes, that the greater number of those who are carried off by this disease, will be found never to have had a carious tooth. I do not take upon me to determine, how far the doctor's assertion may be consistent with the duration of others, but believe, that in this country at least, instances to the contrary may be met with daily.

Women are more frequently affected with pulmonary consumption than men—they partake but in a small degree of those exercises so necessary to the health of the body. Their delicate frames render them extremely susceptible of the action of exciting causes, and their mode of dress, by compressing the thorax, and obstructing a free respiration, necessarily



9
prerogative them to a physical complaint; hence we daily see numbers
of the fairest ornaments of human nature hurried to premature graves.

One of the first things which strike us in these nations, among whom
consumption is most prevalent is the deficiency of their clothing.

But in our mode of living, their clothing is not the only circumstance
which disposes to consumption, some classes of our countrymen appear
to be almost wholly exempt from it, while others suffer particularly.

In confirmation of this idea I am happy in being able to bring forward
the testimony of Doctor Rush, who observed, when speaking of this dis-
ease, that it is scarcely known among the inhabitants of our frontier
settlements. It is generally believed that the Aborigines of our country

were nearly exempted from this disease, however this may have been,
it is certain, that since the introduction of European intemperance
amongst them, consumption has not been uncommon, the active employ-

ments of the Indians are very limited and for the most part the
calves of hunger only can rouse them from the state of inactivity attendant
on the savage life. From these circumstances, I think it not to be wondered
at, if Pthisis pulmonalis should be found to be one of their most frequent
diseases. If any situation in life can entirely preclude from pulmona-
ry consumption, it is most probably that state of civilized society in

[Faint, illegible handwriting visible through the paper, likely bleed-through from the reverse side.]

which the industrious and frugal peasants barely supported by
an unswerving industry, a state equally removed from the temptations
of imported luxury and the allurements of savage indolence.

It has been an idea, held out by some of the first medical characters
that consumption sometimes depends on specific contagion, and ma-
ny instances have been adduced where one person has communicated
the disease to another, but this theory is at best hypothetical, and
even wants the character of probability. Some of opinion that such
cases may be accounted for with more propriety, on less exceptionable
grounds. It cannot be denied that an hereditary predisposition often
exists, by which more than one person in a family may be subjected
to Phtisis; add to this the state of debility induced by a constant
attention to a patient languishing under this disease, and we
will not be surprised that some instances of the disorder should
be attributed to contagion.

It has been before observed that an expectoration of purulent mat-
ter is one of the characteristic symptoms of pulmonary consumption;
the mucus which is thrown up from the lungs in catarrh frequently
resembles this in a considerable degree, and as it is of great importance
to be able to distinguish one from the other, I will, in the

The first of these is the fact that the
the second is the fact that the
the third is the fact that the
the fourth is the fact that the
the fifth is the fact that the
the sixth is the fact that the
the seventh is the fact that the
the eighth is the fact that the
the ninth is the fact that the
the tenth is the fact that the
the eleventh is the fact that the
the twelfth is the fact that the
the thirteenth is the fact that the
the fourteenth is the fact that the
the fifteenth is the fact that the
the sixteenth is the fact that the
the seventeenth is the fact that the
the eighteenth is the fact that the
the nineteenth is the fact that the
the twentieth is the fact that the
the twenty-first is the fact that the
the twenty-second is the fact that the
the twenty-third is the fact that the
the twenty-fourth is the fact that the
the twenty-fifth is the fact that the
the twenty-sixth is the fact that the
the twenty-seventh is the fact that the
the twenty-eighth is the fact that the
the twenty-ninth is the fact that the
the thirtieth is the fact that the
the thirty-first is the fact that the
the thirty-second is the fact that the
the thirty-third is the fact that the
the thirty-fourth is the fact that the
the thirty-fifth is the fact that the
the thirty-sixth is the fact that the
the thirty-seventh is the fact that the
the thirty-eighth is the fact that the
the thirty-ninth is the fact that the
the fortieth is the fact that the
the forty-first is the fact that the
the forty-second is the fact that the
the forty-third is the fact that the
the forty-fourth is the fact that the
the forty-fifth is the fact that the
the forty-sixth is the fact that the
the forty-seventh is the fact that the
the forty-eighth is the fact that the
the forty-ninth is the fact that the
the fiftieth is the fact that the
the fifty-first is the fact that the
the fifty-second is the fact that the
the fifty-third is the fact that the
the fifty-fourth is the fact that the
the fifty-fifth is the fact that the
the fifty-sixth is the fact that the
the fifty-seventh is the fact that the
the fifty-eighth is the fact that the
the fifty-ninth is the fact that the
the sixtieth is the fact that the
the sixty-first is the fact that the
the sixty-second is the fact that the
the sixty-third is the fact that the
the sixty-fourth is the fact that the
the sixty-fifth is the fact that the
the sixty-sixth is the fact that the
the sixty-seventh is the fact that the
the sixty-eighth is the fact that the
the sixty-ninth is the fact that the
the seventieth is the fact that the
the seventy-first is the fact that the
the seventy-second is the fact that the
the seventy-third is the fact that the
the seventy-fourth is the fact that the
the seventy-fifth is the fact that the
the seventy-sixth is the fact that the
the seventy-seventh is the fact that the
the seventy-eighth is the fact that the
the seventy-ninth is the fact that the
the eightieth is the fact that the
the eighty-first is the fact that the
the eighty-second is the fact that the
the eighty-third is the fact that the
the eighty-fourth is the fact that the
the eighty-fifth is the fact that the
the eighty-sixth is the fact that the
the eighty-seventh is the fact that the
the eighty-eighth is the fact that the
the eighty-ninth is the fact that the
the ninetieth is the fact that the
the ninety-first is the fact that the
the ninety-second is the fact that the
the ninety-third is the fact that the
the ninety-fourth is the fact that the
the ninety-fifth is the fact that the
the ninety-sixth is the fact that the
the ninety-seventh is the fact that the
the ninety-eighth is the fact that the
the ninety-ninth is the fact that the
the hundredth is the fact that the

method commonly used for this purpose.

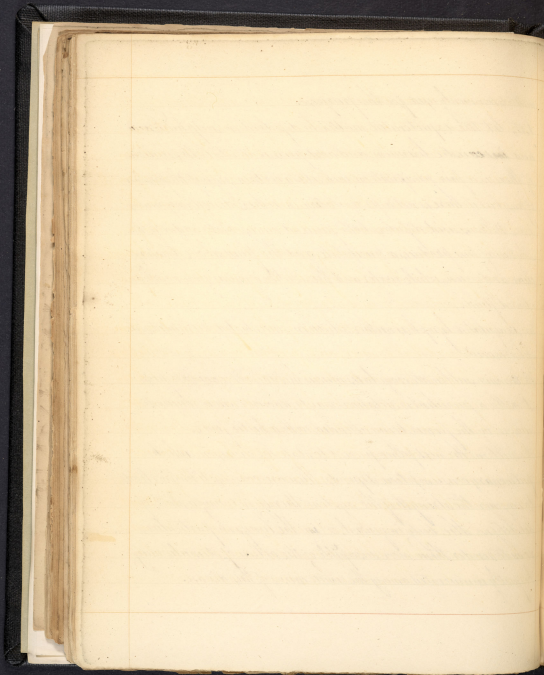
1st, let the expectorated matter be dissolved in sulphuric acid and ~~im~~ caustic lixivium and add pure water to both solutions. If there is a fair precipitate in each, it is a certain sign of the presence of pus; but if there is not a precipitation in either, it is certainly mucus. 2nd, Nitrous acid dissolves both pus and mucus. Water added to the solution of pus produces a precipitate, and the fluid above becomes clear and green, while water and the solution of mucus form a turbid coloured fluid.

3rd, Coagulated lymph is neither soluble in concentrated nor diluted sulphuric acid.

4th, Casein, sublimatic coagulates mucus but does not coagulate pus.

Lastly a purulent expectoration may be known from a mucus discharge, by the former being attended with a hectic fever.

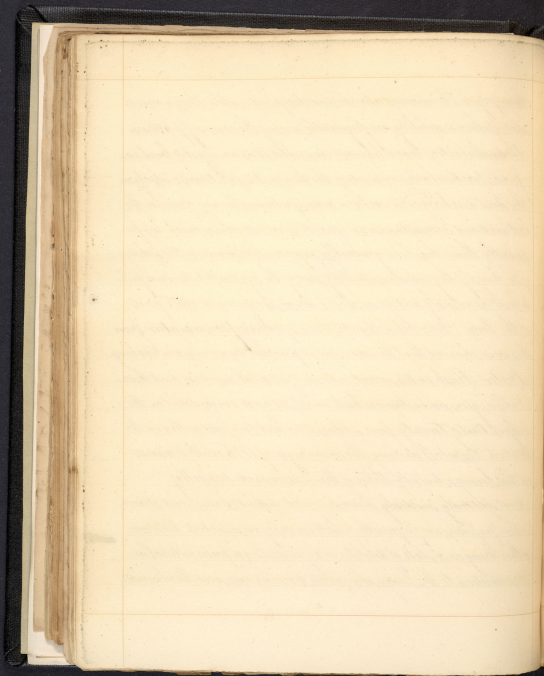
I shall in the next place proceed to state the causes which pulmonary consumption depends upon, these are various. What ever tends to impair the strength of the system, thereby inducing a state of debility in the body in general, or in the lungs in particular, so as to render them more susceptible of the action of stimuli, may be justly enumerated among the remote causes of this disease.



Haemoptysis, Haemorrhia, Catarrh, and Scurphula, when they induce a state of chronic debility, are frequently among the causes of phthisis.

Medical writers have likewise described it as an effect of local injury, particularly wounds of the lungs, it is said to arise also from the dust discharged in certain manufactories. In my opinion the last mentioned circumstance can operate as remote causes much less frequently than has been generally supposed. Wounds in the substance of the lungs if they occur in a healthy state of the system I believe are found to heal as certainly and in as short a period, as injuries in other parts of the body. Mr. John Hunter, when speaking of consumption from this cause, observed that he never saw it produced by a wound in the lungs. Doctor Rush in his second volume of medical inquiries and observations, gives an instance which must set aside every doubt on the subject. Out of twenty-four soldiers, who had been admitted in the British Hospitals during the campaign of 1776. with wounds in the lungs, twenty-three of them recovered perfectly.

Heat, suddenly, ~~mettled~~ ^{surrounding} cold, violent exercise, and stimulating passions, are frequently remote causes of consumption, these may either bring on a state of debility, or by inducing a preternatural determination to the lungs, may excite haemorrhage, and thereby excite



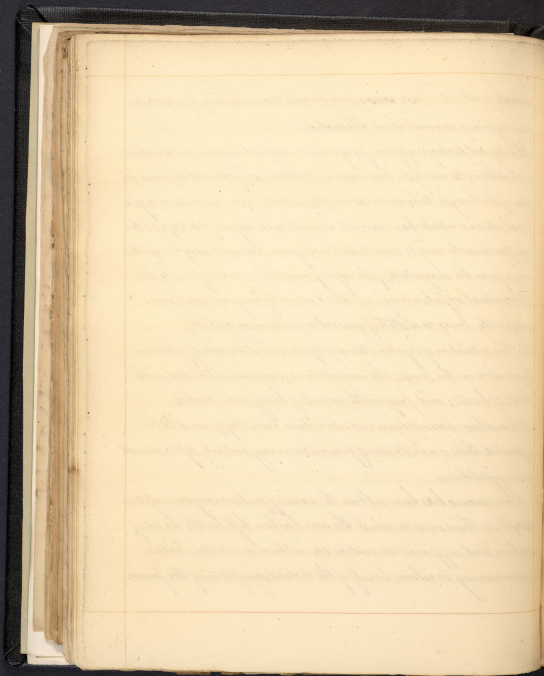
13
a weak part. To these causes may be added, a sedentary life, and the suppression of any customary evacuation.

It may not perhaps appear foreign to our subject, to enquire, under what circumstances Hemoptysis, Pneumonia and Catarrh, are followed by consumption of the lungs? Whenever Hemoptysis occurs, as a symptom of a general disease which has occasioned a considerable degree of debility, a phthisis pulmonalis may be denoted as its consequence; the same may be expected when from the magnitude of the injury and the irritation given to the Bronchial vessels, a cough is induced which if long continued, must necessarily bring on a state of general or pulmonary debility.

In this situation of system, Hemoptysis is most commonly followed by an ulcer in the lungs, this ulceration is sometimes attended with little of haemorrhage, and frequently admits of being soon healed.

Even when haemoptysis and ulceration have happened to be repeated, there are instances of persons recovering entirely after several such repetitions.

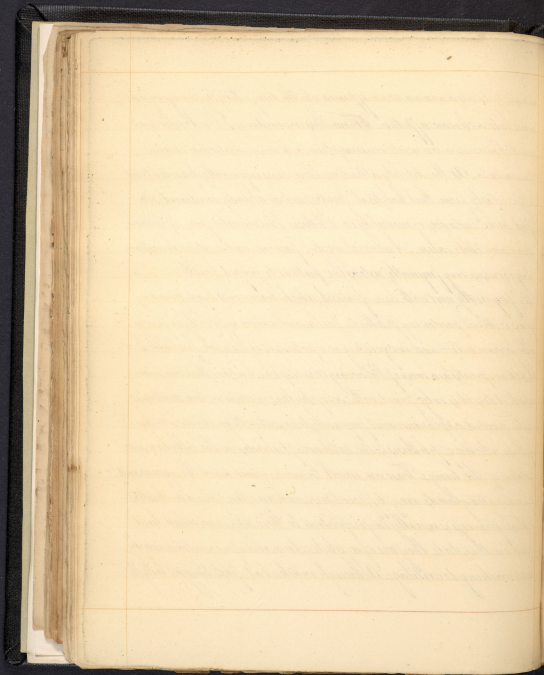
Pneumonia has been seldom the cause of pulmonary consumption except in those cases in which the cure has been left in the hands of nature and sufficient evacuation has not been resorted to. Nature endeavouring to relieve herself of the violent symptoms of the former



44
disease, producing a variety of an effusion on the lungs thereby changing an acute into a chronic affection. From this circumstance, Dr Rush has called Pneumonia an acute consumption, and consumption a chronic Pneumonia. As the debility attending these cases is generally transient and differs widely from that habitual predisposition already mentioned; we find fewer instances of mortality in Phtisis Pulmonalis from this than from any other cause. A nourishing diet, fresh air, and a return to customary exercises, very frequently restore the patient to perfect health.

We frequently meet with cases of catarrh, which have continued for many years without producing phtisis pulmonalis, more especially in persons who pursue active and invigorating occupations; it is therefore probable that it seldom operates as a cause of Pulmonary consumption, and in those cases in which it does it is only joined with, or complicated with, consumptive diathesis.

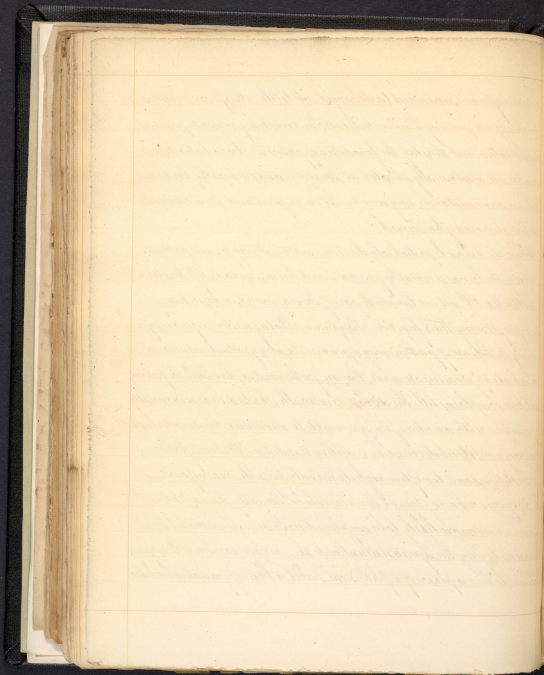
The morbid appearance most frequently to be met with on the dissection of those who die of phtisis is the existence of tubercles, in the cellular substance of the lungs. These are small tumours, which have the appearance of indurated glands, are of different sizes, and are often found in clusters. Their firmness is usually in proportion to their size, and when laid open in this state, they are of a white colour, and of a consistence nearly approaching to cartilage. Although indolent at first, they at length



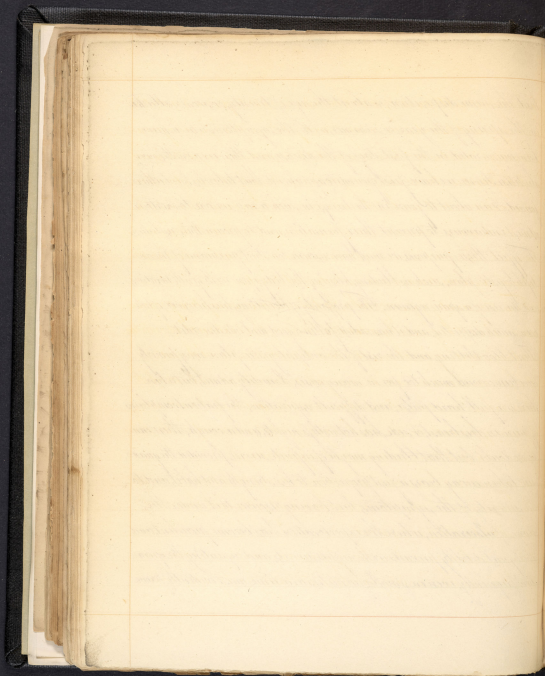
become inflamed, and are at last changed into little abscesses or empyema which breaking, and pouring their contents into the bronchia give rise to purulent expectoration, and thus lay the foundation of phthisis. Such tubercles or empyema, are most usually situated at the upper and back part of the lungs, but in some instances, they occupy the outer part, and then adhesions to the pleura are often formed.

When the disease is partial, only about one fourth of the upper and posterior part of the lungs is usually found diseased, but in some cases, life has been protracted till not one twentieth part of them appeared, on dissection, fit for performing their function. I apprehend that a great cause of our inefficiency in the cure of phthisis may depend on the very gradual manner in which its approaches are made, they are for the most so, slow that the patient seldom complains till the disease is incurable. Indeed he is so invariably possessed with an idea of the formidable termination of his disorder, that throughout its whole course he is willing to indulge the most flattering expectations, and too often neglects the only possible means of cure.

Experience having taught that it is only in the early stage of phthisis that remedies are likely to be employed with success, we ought by all means to pay the greatest attention to the first appearance of the symptoms. When a person of a phthisical habit, or born of parents who have



had the same disposition; is about the age of twenty, or sooner, attacked
 in the spring of the year, or summer, with the symptoms which have
 been enumerated in the first stage of the disease, and this even in the very
 slightest degree, we have just grounds to apprehend that tubercles have either
 formed, or are about to form in the lungs; in such a case we are to exert
 utmost endeavours to prevent their formation, and to procure their resolution.
 To effect these purposes we must have recourse to a strict purgative of the an-
 tiphlogistic plan, such as bleeding, keeping the body open with gentle laxatives,
 and the use of a spare regimen. The propriety of bloodletting, has however, of late
 been much disputed, and it has indeed fallen a good deal into discredit.
 That bloodletting, and the rest of the antiphlogistic plan may formerly
 have been carried much too far in many cases, I readily admit, but when
 there is a full hard pulse, and difficult respiration, the patient complains
 of pain in his breast, or side, has hot restless nights, and a cough, there can
 be no doubt but that bleeding may be of infinite service, provided the quan-
 tity taken away bears a just proportion to his strength and habit, and to
 the severity of the symptoms; but having recourse to it under the
 stage of fulsuration, where the expectoration has become purulent, and
 when great debility prevails with nights, sweats, and vomiting, the opera-
 tion frequently, even in small quantities, at a time must evidently prove



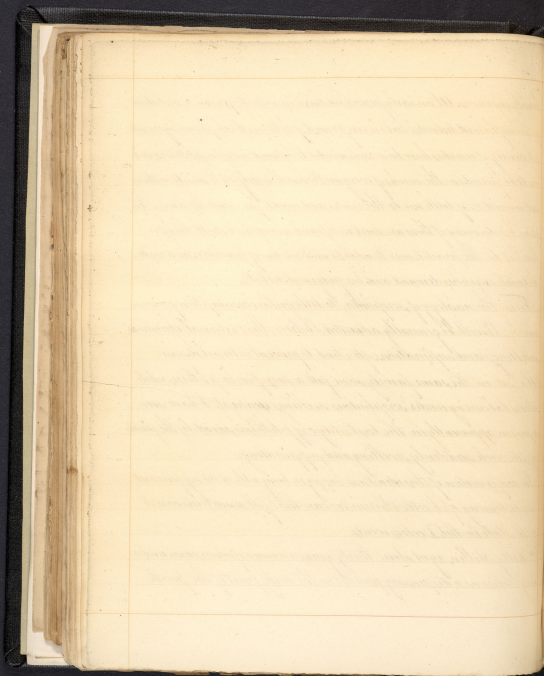
highly injurious. At an early period, we have in view to procure resolution of the inflamed tubercle; but in confirmed phthisis this hope no longer exists. A variety of remedies have been recommended to be made use of in phthisis, and are to be found in the works of every author on this subject; to mention them all would be of little use to the reader and would far exceed the limits of this essay; many of them are inert, useless, and improper. I shall therefore leave it to the practitioner to adopt a medical line of practice which constitutional exigencies demand and his judgment dictates.

From the analogy of scrophulous, to tubercular consumption promises much. It will be generally admitted I believe, that external glandular swellings and suppurations, often tend to prevent internal disease.

We see in the same family some fall a sacrifice to phthisis, while others labouring under scrophulous swellings escape it. I have seen a person apparently in the last stage of phthisis, saved by the glands of the neck, suddenly swelling and suppurating.

In confirmation of this idea I am happy in being able to bring forward the testimony of Doctor Virriss, a case that fell under his care. I will state in the Doctor's words.

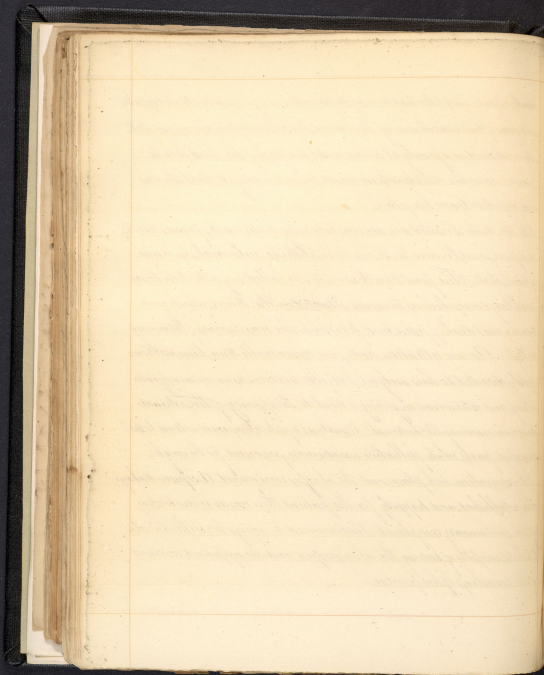
"Ketty Hillin, aged about thirty years, a woman of colour, came under my notice as a dispensary patient in the early part of the fourth



month (April) 1869. She had been afflicted with a cough for about twelve months and was often unwell during that period, but although in an infirm state she continued in a family at service until the first of the third month (March) when her complaints increased to such a degree that she was compelled to leave her place.

At the time I visited her, she was labouring under cough, frequent吐血, and fever, and I believe her disease to be pleurisy pneumonia in an incipient state. The first time I saw her she called my attention to several large serpygulous tumours, situated on the thorax, which gave her a great deal of pain, and for which she was desirous of obtaining relief. As my attention had for a considerable time been particularly directed to this subject, I viewed her case as uncommonly interesting and determined on giving a trial to the efficacy of the external drops in removing the external. Emollient applications were ordered to the tumefied parts, while palliative remedies were prescribed for the cough.

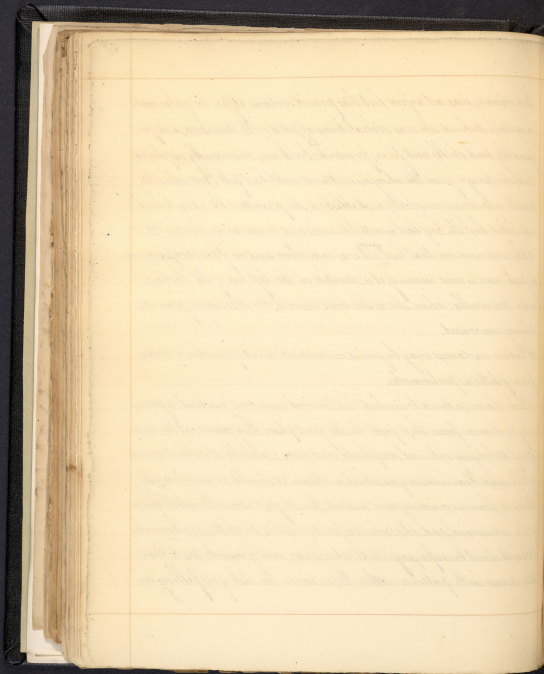
Suppuration took place, and the abscess was cured. A copious discharge was established, and happily for the patient there was an evident abatement of the pulmonary complaint. I endeavoured to impress her with the absolute necessity of keeping the abscess open, and she appeared convinced of the necessity of the practice.



Her recovery was not rapid but has proved certain. After the pulmonary symptoms declined, she was, several times affected with diarrhoea, and frequently had chills and fever, for which, bark was occasionally employed. The discharge from the abscess, continued until last fall (1812) when her health appearing completely re-established, she permitted the uterus to heal. I visited her the 30th last month (Jan 1812) and found her in fine health. She informed me that last ^{spring} she was indisposed, and one of her lobes suspended a pus, and is now running, it is situated on the left side of the thorax, near the axilla, when she is the least unwell, the discharge from it is always increased.

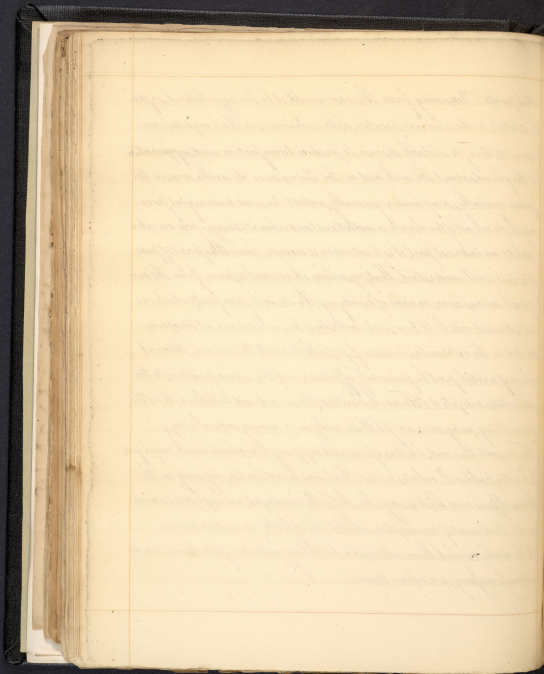
A few instances may be found on medical record of similar recoveries from phthisis pulmonalis.

Now I am induced to conclude that several important practical inferences may be drawn from these facts. In the first place they point out the danger of dislodging external serophula, and more especially at critical periods of life, and I can conceive of no situation wherein it should be more carefully observed than in a young and delicate female, just about the establishment of the catamenia, and who inherit a predisposition to phthisis pulmonalis. Would it not be safer, says the Doctor, under such circumstances, to bear the disease with patience, rather than incur the risk of its falling on



vital parts? Inquiring from this case would it be too hypothetical, so far
to imitate nature in our practice, as to endeavour, in the very commence-
ment of this formidable disease to produce tumefaction and suppuration
in the glands about the neck, and on the throat near the axilla, even, in the
former especially, scrophulous is generally stated? In some diseases, good, for ex-
ample, do we not often observe a metastasis? and when it changes from an exter-
nal to an internal part, it is productive of danger, hence this part of prac-
tice is so well understood, that physicians in general refrain from the use
of such means as are capable of displacing the disease from parts which are
not esteemed vital. When such metastasis has occurred, are not sanguisums
directed to the extremities, in order if possible to excite the disease therein?
or even if a vital part be primarily affected, is not the same practice, to the
extremities adopted? From observation I am inclined to believe that the
same thing may occur in phthisis only in a more gradual way.

To answer this end, blisters, issues and cupping have been much employed,
Doctor Caldwell relates a case, that was cured by dry cupping on the
thorax, issues, and blisters, says he, skillfully managed, an important remedy
in the treatment of consumption, whether the defect be pervasion or cure.
To be really useful, their action should be long continued, for a chronic remedy
is always necessary in a chronic disease.



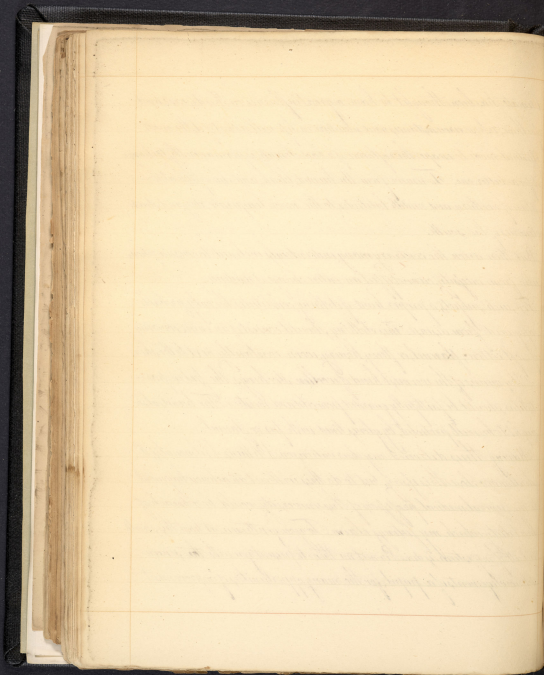
Climate has been thought to have a great influence on this disease and for those, whose circumstances and situation in life will admit of it, the most effectual mode to escape the influence of a bad climate, is permanently to change it for a better one. To remove from the humid, bleak, and changeable atmosphere of northern and middle latitudes, to the more temperate, dry and shady climates of the south.

But there are on the contrary many individuals inclined to consumption, who from necessity, cannot effect an entire change of residence.

For such subjects, a proper kind of clothing constitutes the only probable safeguard from disease. This clothing should consist of an entire covering of soft cotton, flannel, or fleece, hairy, worn constantly next to the skin.

By means of the warmest kind of woollen stockings, the feet in particular, should be faithfully guarded from cold and moisture. The hands also ought to be well protected, by gloves lined with fur or flannel.

Having thus delivered my observations on this subject, I shall now close this essay, but to do this without an acknowledgment to the several medical professors of this university, would be a breach of that duty which my feelings claim. To you gentlemen, at least this small tribute of my esteem is due. Permit me then to present you with the sincere acknowledgments of a pupil, for the many opportunities of improvement



which your truly valuable lectures have afforded him. That you may long
continue to exercise the duties attached to your respective departments, with
the same reputation that has heretofore characterized your labours, is my sine-
cere wish.

